1.0 PROJECT PURPOSE

The Town of Emerald Isle proposes to address a severe erosion problem that is threatening existing development and town infrastructure along the west end of town in an area known as The Pointe and seeks beach compatible material to nourish approximately 4.0 miles of beachfront. This Environmental Impact Statement (EIS) will evaluate a full range of alternative erosion response measures including no action, abandonment/or relocation of threatened homes, and relocation of the inlet ocean bar channel to a more central position between Bogue Banks and Bear Island.

1.1 PROJECT LOCATION

Bogue Inlet is located on the border of Carteret and Onslow Counties in southeastern North Carolina and provides access to recreational and commercial vessels between the open waters of the Atlantic Ocean and the Atlantic Intracoastal Waterway (Figure No. 1). Bogue Inlet is bordered to the east by Bogue Banks and is situated approximately twenty-five miles west of Beaufort Inlet. The Town of Emerald Isle comprises the western eleven miles of the barrier island complex in Carteret County. West of Bogue Inlet is Bear Island, an undeveloped barrier island approximately three miles in length in eastern Onslow County.

1.2 BOGUE INLET HISTORY

Detailed geomorphic studies of the inlet, which covered the period from 1973 to 2001, determined that the Bogue Inlet channel was located midway between Bogue Banks and Bear Island in the early 1970's to around the mid 1980's. During this earlier period, the channel fluctuated to both the east and west. Beginning around 1984, the channel began a persistent movement toward the east with this tendency continuing today. While the eastward movement of the bar channel has caused serious erosion of the inlet or The Pointe shoreline and poses a serious threat to homes and infrastructure, the ocean facing beaches on the west end of Emerald Isle have accreted. This accretion, which has favorably impacted the western most 7,500 feet of the Emerald Isle ocean shoreline, is primarily due to the wave shadowing effect created by the east orientation of the bar channel. The eastward movement of the bar channel has had an opposite effect on the ocean shoreline of Bear Island as this island has eroded between 600 and 800 feet along sections closest to the inlet to around 100 feet at a point 7,500 feet west of the inlet.

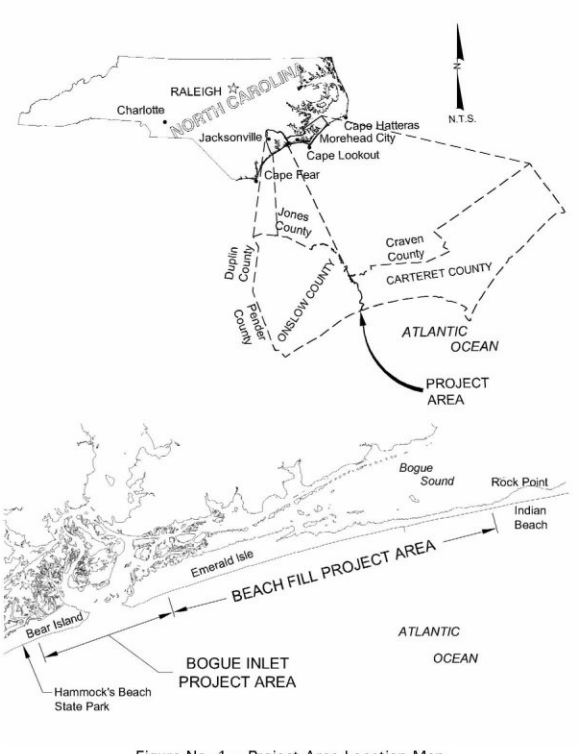

Figure No. 1 – Project Area Location Map

1.2.1 Initial Authorization

In the 1970's and 1980's both the shallow depths and the uncertain location of the natural channel prompted the local government, specifically the Onslow County government to pursue Federal authorization to annually dredge the channel in anticipation of a more efficient and safe navigation. Federal authorization to conduct channel maintenance was authorized on September 7, 1983 under authority of Section 107 of the Rivers and Harbors Act of 1960 (P.L. 86-645) based on a Detailed Project Report dated May 1983. The authorized channel extends from the inlet gorge through the ocean bar and measures 150 feet wide at a depth of 8 feet mean low water. The Bogue Inlet project is a side channel of the Atlantic Intracoastal Waterway. Under Section 107 (Continuing Authority), specific Congressional authorization is not required. The inlet channel connects with a 6-foot MLW x 90-foot wide channel that extends from the inlet gorge to the Intracoastal Waterway. This connecting channel was authorized on November 29, 1963 under Section 107 and was based on a Detailed Project Report dated April 1963.

Under the current project authority, the U. S. Army Corps of Engineers (USACE) Navigation Branch follows the deep water channel that exists at the time maintenance dredging is performed. Accordingly, no attempt is made to maintain a fixed channel location or alignment.

The USACE Navigation Branch maintains Bogue Inlet channel using a U.S. Government dredge plant, primarily sidecast dredges. Sidecast dredges pick material up from the bottom of the channel using drag-arms and discharge the material off to the side of the vessel in open water. Between 1984 and 1999, the average amount of material removed from the bar channel was 151,500 cubic yards/year. The rate of dredging has increased substantially over the last three years (2000 to 2002) averaging 514,200 cubic yards/year. Maintenance of this channel, which is normally combined with the removal of shoal that form at the confluence of the channel and the AIWW, entails the removal of between 50,000 cubic yards and 100,000 cubic yards with this material being pumped to the ocean shoreline on the west end of Emerald Isle. Disposal of this material normally begins at a point 1,500 feet east of the inlet shoulder and is spread over 1,000 to 2,000 feet of shoreline.

1.2.2 Supplemental Appropriation

Funds for maintenance dredging of both the ocean bar channel and Atlantic Intracoastal Waterway connecting channels are included in the general O&M budget developed each year by the USACE - Wilmington District. Between

1984 and 1999, the average amount expended on maintenance of the Bogue Inlet project was $432,000 per year (unadjusted for inflation). The average amount expended between 2000 and 2002 (a period of increased maintenance activity) was $1,223,400.

1.3 PROJECT OBJECTIVES

The Town of Emerald Isle, which covers approximately the western 11.2 miles of Bogue Banks, is suffering from the erosive effects of the eastward migration of the Bogue Inlet ocean bar channel. The bar channel began its eastward trek around 1984 and has moved steadily to the east at an average rate of 93 feet per year. The eastward migration of the inlet channel has been accompanied by erosion of the inlet shoreline that borders the Pointe subdivision located on the extreme west end of the Town of Emerald Isle. Inlet shoreline erosion rates have varied between 60 and 90 feet per year since the mid 1980's.

Presently, seven homeowners and the Town of Emerald Isle have responded to the erosion threat by constructing temporary sandbag revetments to protect threatened homes and infrastructure. The existing sandbag revetment covers approximately 700 feet of the inlet shoreline and has been effective in protecting the threatened homes and roads albeit not without some maintenance. State of North Carolina coastal management rules and regulations will only allow the sandbag revetments to remain in place for two years, if they are protecting homes, and five years if it is protecting large structures or roads. The eventual removal of the existing sandbag revetments will result in the immediate loss of these seven threatened homes and a resumption of the inlet shoreline erosion. Accordingly, the Town of Emerald Isle is seeking a more permanent means of addressing the erosion threat.

The Town of Emerald Isle has permits to nourish approximately 10 miles of its 12 mile ocean shoreline. The Emerald Isle beach nourishment project is part of an island-wide project sponsored by Carteret County. The County project covers approximately 16.8 miles of ocean shoreline and begins at the east town limits of the Town of Pine Knoll Shores and ends at a point 6,500 feet (1.25 miles) east of Bogue Inlet. Phase 1 of the Bogue Banks project, which was completed in April 2002, included the shorelines fronting the towns of Pine Knoll Shores and Indian Beach as well as the shoreline fronting the unincorporated village of Salter Path. The Town of Emerald Isle has divided its portion of the project into two phases. As shown on Figure No. 2, Phase 2 covers the eastern 31,100 feet of the town's shoreline and Phase 3 the western 23,831 feet. Phase 3 consists of a 21,300 foot main fill

section, a 531 foot taper on the east end to tie to the end of Phase 2, and a 2,000 foot taper on the west end. Phase 2 of the beach nourishment project was constructed between January 14 and March 27, 2003. The work was accomplished by a combination of ocean certified pipeline dredge and hopper dredge using direct pump-out with material being obtained from the approved offshore borrow areas. A total of 1,867,726 cubic yards was distributed along the 31,100 feet of shoreline associated with Phase 2 of the project. The design template for Phase 3 of the beach nourishment project calls for 35.2 cubic yards in place per linear foot of beach or a total in place volume of 794,300 cubic yards. Some controversy has occurred regarding the quality of the beach nourishment material obtained from the offshore borrow area, which had a relatively high shell content. As a result, the Town of Emerald Isle is seeking alternative borrow sources that would yield high quality beach nourishment for Phase 3 of its project.

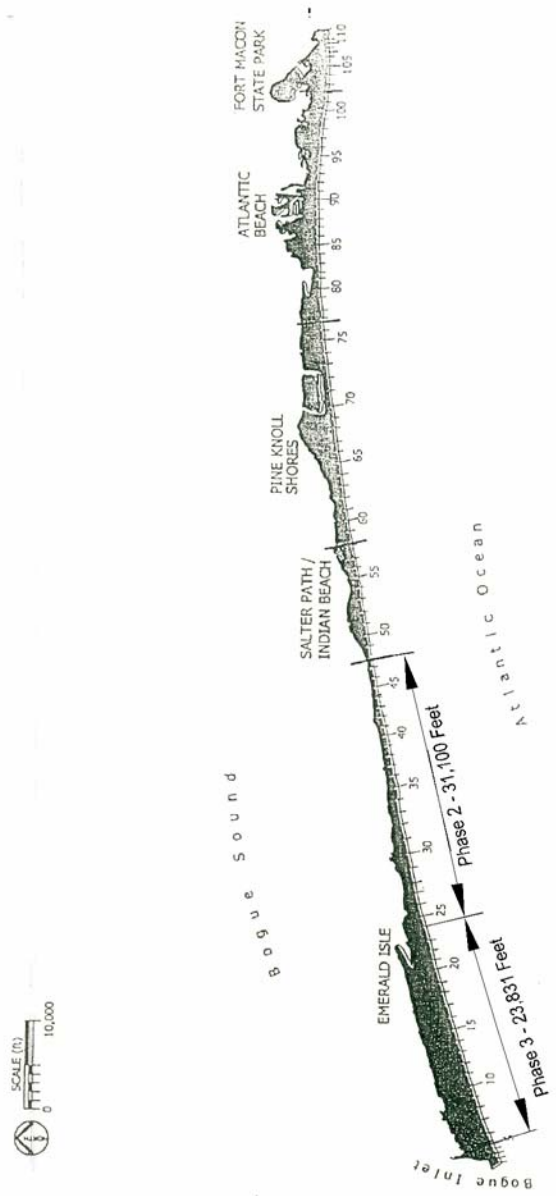

Figure No. 2 – Phase 2 and 3 of the Emerald Isle Beach Nourishment Project

1.3.1 Project Needs and Opportunities

The goals and objectives of the Bogue Inlet Channel Erosion Response Project area as follows:

- Short-term protection of seven homes at The Pointe and portions of Inlet Drive and Inlet Court over the next zero to five years;
- Long-term protection of 31 to 50 home and Town infrastructure over the next ten years;
- Eliminate or reduce the erosion rates along The Pointe shoreline;
- Reestablish public access from Inlet Drive to the inlet and beachfront shorelines;
- Improve recreational opportunities along the Town's ocean shoreline;
- Acquisition of beach compatible material for shore protection project;
- Restoration of beach and inlet habitat along 700 feet of The Pointe; and
- Maintain Town's tax base by protecting existing development and infrastructure on the west end of Emerald Isle.

1.4 RELATED ACTIONS

The following is a summary of activities that have or potentially could have an impact on the shoreline of Bogue Banks.

Bogue Banks Non-Federal Beach Nourishment Project. On October 26, 2001, a Section 404 and Section 10 permit was issued to Carteret County, Pine Knoll Shores, Indian Beach, and Emerald Isle to place sand from an offshore site onto 16.8 miles of beach. The project encompasses three phases, and all permitted work is limited to a November 16 to April 15 dredging window. Phase 1 was conducted in 2001/2002, Phase 2 occurred in 2003, and Phase 3 has been postponed pending decisions regarding the response to the erosion on the west end of Emerald Isle associated with the eastward migration of the ocean bar channel of Bogue Inlet. Phase 1 nourished close to the projected 7 miles of beach in Pine Knoll Shores, Salter Path, and Indian Beach. Phase 2 nourished approximately 6 miles of eastern Emerald Isle and was completed in March 2003.

Bogue Banks Coastal Storm Damage Reduction Feasibility Study. In February 2001, the Wilmington District began a Feasibility Study for a 50-year Coastal Storm Damage Reduction Project. This study is scheduled for completion in September 2004 with a Draft Feasibility Report and Draft EIS being submitted for review in the spring of 2004. The project is being formulated with the assistance of a Project Delivery Team consisting of state and federal resources agencies

Morehead City Harbor Section 933 Project. The Evaluation Report and FONSI were completed in August 2003. This project, if funded by Congress, will place approximately 1.1 million cubic yards of material on the beach front of Pine Knoll Shores, in addition to the placement of approximately 2.0 million cubic yards on Ft. Macon and Atlantic Beach. If the Section 933 is not funded, then all 3.1 million cubic yards will go on Ft. Macon and Atlantic Beach as the least cost disposal of material from the Inner Harbor and Brandt Island Pumpout.

Bogue Inlet Navigation Project. The Wilmington District has maintained an 8-foot deep by 150-foot wide channel through Bogue Inlet since 1983. The project funding is 100% federal and dredging occurs annually in accordance with availability of funds and project needs. The district maintains the channel by dredging to the greatest extent practicable through areas of naturally deeper water.

Morehead City Harbor Navigation Project. The Wilmington District maintains a channel 45 feet deep and 450 feet wide from the Atlantic Ocean through the ocean bar at Beaufort Inlet with wideners and turning basins to the Morehead City ports. The project funding is 100% federal and portions of the project are dredged annually in accordance with project needs. Dredged material from the ocean bar is placed in the near-shore area in the vicinity of Ft. Macon. Dredged material from the inner harbor is placed at a confined upland disposal area (Brandt Island). The Brandt Island material is then pumped to area beaches along Bogue Banks on an 8 – 10 year cycle.

Emerald Isle Sandbag Permits. Awaiting information.

Bogue Banks Beach Scraping Permits. Awaiting information.

1.5 ISSUES ELIMINATED FROM DETAILED ANALYSIS

The Bogue Inlet Channel Erosion Response Project does not focus on improving navigation through Bogue Inlet; however, alternatives for responding to the inlet channel erosion problem will be evaluated with

respect to any negative or positive impacts on navigation interest that regularly uses the inlet. Navigation improvements for Bogue Inlet would have to be authorized either under Section 107 Authority provided by the Rivers and Harbors Act of 1960 or as a result of a specific Congressional authorization for a Federal Feasibility Study.

1.6 DECISIONS TO BE MADE

This Environmental Impact Statement will evaluate a full range of alternatives for responding to the erosion associated with the eastward migration of the Bogue Inlet bar channel. Each alternative will be evaluated for its ability to satisfy the stated project goals and objectives, as well as the environmental, economic, and social consequences associated with each alternative. This evaluation process will lead to the selection of a preferred alternative that meets the project needs and objectives while resulting in minimal negative environmental impacts.

1.7 PERMITS, LICENSES AND ENTITLEMENTS

The following section includes a description of applicable Federal and State laws associated with the Bogue Inlet Channel Erosion Control Project. This EIS document has been prepared to satisfy both NEPA and SEPA requirements in accordance with the laws in Section 1.7.1 and 1.7.2. For compliance status for each law refer to Table 14 (Section 5).

1.7.1 National Environmental Policy Act of 1969.

A Preliminary Draft Environmental Impact Statement (EIS) for the Bogue Inlet Channel Relocation Project will be submitted to the Federal, State and the Project Delivery Team members in September 2003 for review. A Final EIS will be developed based on the results of comments received from the Draft EIS and coordination efforts during the development of the project. The proposed project will be in full compliance with the National Environmental Policy Act.

1.7.2 North Carolina Environmental Policy Act (As Amended)

The Environmental Impact Statement will be developed in accordance with the requirements of the State Clearinghouse review process under the North Carolina Environmental Policy Act (NCEPA, G.S. 113A-1), based upon the agreement between the North Carolina Division of Coastal Management and the U.S. Army Corps of Engineers. Additional filing under the NCEPA is not required.

1.7.3 North Carolina Coastal Area Management Act of 1974

The North Carolina Coastal Area Management Act (CAMA) (§ 113A-100) was implemented to preserve the physical, aesthetic, cultural and recreational values, including the management of land and water resources in North Carolina's 20 coastal counties. Under CAMA, permits are necessary for development type projects proposing work in any Areas of Environmental Concern (AEC) established by the Coastal Resources Commission. An AEC includes areas of natural importance such as 1) estuarine and ocean systems, 2) ocean hazard system, 3) public water supplies, 4) natural and cultural resource areas. Under CAMA, the proposed work cannot cause significant damage to one or more of the historic, cultural, scientific, environmental or scenic values or natural systems identified in any of the AECs listed. In addition, significant cumulative effects cannot result from a development project. (NCDENR, 2003)

1.7.4 North Carolina Dredge and Fill Law

Under CAMA (§ 113-229), the North Carolina Division of Coastal Management regulates projects that involve excavation or filling in any estuarine waters, tidelands, marshlands, or State-owned lakes. An applicant proposing work in such lands must obtain a permit from both the North Carolina Department of Environment and Natural Resources and the USACE. (NCDENR, 2003)

1.7.5 North Carolina Surface Water Quality Standards

The North Carolina Division of Water Quality Surface Waters and Wetlands Standards (North Carolina Administrative Code 15A NCAC 02B .0100 & .0200) was implemented for assigning and regulating water quality standards for any waters in the State of North Carolina. The project area is classified as both SA waters and Outstanding Resource Waters. Class SA waters are surface waters suitable for shellfishing for market purposes. Waters designated as Class SA have specific water quality standards that must be met, as well as the water quality standards assigned to both Class SB and SC waters. Outstanding Resource Waters (ORW) include waters of exceptional water quality. Waters designated as ORW and/or Class SA waters are also classified as High Quality Waters (HQW). (NCDENR, 2003)

Based on the above classifications, water quality standards applicable to the project area include: 1) “turbidity in the receiving water shall not exceed 25 Nephelometric Turbidity Units (NTU)” 2) “changes in salinity due to hydrological modifications shall not result in the removal of the functions of a Primary Nursery Area (PNA)” 3) temperature “shall not be increased above the natural water temperature by more than 0.8 °C (1.44°F) during the months of June, July or August nor more than 2.2 °C (3.96 °F) during other

months, and in no cases to exceed 32ºC due to the discharge of heated liquids" 4) dissolved oxygen cannot decrease below 5.0 mg/l, except in "poorly flushed tidally influenced streams or embayments, or estuarine bottom waters" which may have decreased values from natural causes and 5) pH levels "shall be normal for the waters in the area, which generally range between 6.8 and 8.5 except that swamp waters may have a pH as low as 4.3 if it is the result of natural conditions." (NCDENR, 2003)

1.7.6 Clean Water Act of 1972

Section 404 of the Clean Water Act established a permit program to regulate the discharge of dredged and fill material into waters of the U.S., including wetlands. Additional activities regulated under this program include dame, farming and infrastructure along highways, roads and airports in waters of the U.S. This program is jointly administered by Environmental Protection Agency and the U.S. Army Corps of Engineers (USEPA, 2003).

Section 401 of the Clean Water Act includes the delegation of federal authority to the State of North Carolina to issue a 401 Water Quality Certification. The 401 Water Quality Certification is applicable to all projects that require a Federal permit (i.e., Section 404 Permit) for discharge of dredge material into waters and wetlands of the U.S. The 401 Water Quality Certification Program is administered by the North Carolina Division of Water Quality to prevent the degradation of waters in the State and to prevent any violations of the State water quality standards.

1.7.7 Section 10 Rivers and Harbors Act of 1899

Section 10 of the Rivers and Harbors Act states that "it shall not be lawful to excavate or fill.....alter or modify the course, location, condition, or capacity of, any port roadstead, haven, harbor, canal, lake, harbor of refuge, or inclosure within the limits of any breakwater, or of the channel of any navigable water of the United States unless the work has been recommended by the Chief of Engineers and authorized by the Secretary of War...." (USACE, 2003).

1.7.8 Endangered Species Act of 1973

Coordination with the U.S. Fish and Wildlife Service and NOAA National Marine Fisheries Service (NMFS) includes consultation under Section 7 of the Endangered Species Act of 1973, as amended.

1.7.9 Coastal Barrier Resources Act and Coastal Barrier Improvement Act of 1990

The United States Congress has designated a majority of the Bogue Inlet area including Hammocks Beach State Park on Bear Island and Dudley Island

as Otherwise Protected Area (OPA) NC-06P under the Coastal Barrier Resources Act (CBRA) (Figure No. 3). There are three important goals associated with a CBRA unit. These goals include: 1) minimizing loss of human life by discouraging development in high-risk areas; 2) reducing wasteful expenditure of Federal resources; 3) and protecting the natural resources associated with coastal barriers (USFWS, 2003). The Coastal Barrier Improvement Act (CBRIA) of 1990 provides development goals for undeveloped coastal property held in public ownership, such as wildlife refuges, parks, or other lands set aside for conservation, which are identified as OPA's.

Historically, Federal expenditures (e.g., Federal flood insurance and other Federal financial assistance) had the effect of encouraging development in fragile, high-risk coastal barrier systems (e.g. barrier islands and sand spits). The CBRA and CBRIA limit federally-subsidized development within a defined Coastal Barrier Resources Unit. The only restriction applied to an OPA prohibits the expenditure of Federal Flood Insurance to new construction of structures (buildings). There are no other restrictions placed on Federal expenditures in an OPA (USFWS, April 2003).

There are exceptions to the use of Federal monies within a CBRA Unit. Certain activities, which are exempt under Section 6 "Exceptions" of the CBRA include: 1) projects for the study, management, protection, and enhancement of fish and wildlife resources and habitat; 2) establishment, operation, and maintenance of air and water navigation aids and devices; 3) projects under the Land and Water Conservation Fund Act of 1965 and the Coastal Zone Management Act of 1972; 4) scientific research, including but not limited to aeronautical, atmospheric, space, geologic, marine, fish and wildlife and other research, development, and applications; 5) assistance for emergency actions essential to the saving of lives and the protection of property and the public health and safety, if performed pursuant to the Disaster Relief Act of 1974; 6) the maintenance, replacement, reconstruction, or repair, but not the expansion, of publicly owned or publicly operated roads, structures, or facilities; 7) nonstructural projects for shoreline stabilization that are designed to mimic, enhance, or restore natural stabilization systems (U.S. Congress, 1982).